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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,829	08/21/2002	Chellappa Balan	124719	9788

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EXAMINER

DOVE, TRACY MAE

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 05/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/064,829

Applicant(s)

BALAN, CHELLAPPA

Examiner

Tracy Dove

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

This Office Action is in response to the communication filed on 3/3/05. Applicant's argument have been considered, but are not persuasive. Claims 1-14 remain rejected as failing to comply with the enablement requirement. This Action is made **FINAL**.

#### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification recites "the cooling apparatus 100 serves to electrically connect the anode of one repeatable fuel cell unit to the cathode of an adjacent unit" [0013]. If the cooling apparatus has a cavity allowing the fluid from the upper section to enter the lower section, then the same fluid (oxidant or gaseous fuel) would contact both anode and cathode surfaces. Figure 1 shows the fluid 190 contacts the cathode surface 200. As disclosed by the specification, another fuel cell is located adjacent the lower section 130. Hence, the fluid 190, via cavity 180, contacts both the cathode 200 of a first fuel cell and the anode of a second fuel cell. In order for a fuel cell to operate, an oxidizing fluid contacts the cathode and a fuel fluid (i.e., hydrogen) contacts the anode. It is unclear how the fuel cell generates power since the same fluid (i.e., oxidant or gaseous fluid) contacts both the anode and the cathode electrodes. See Figure 3 of the specification.

*Response to Arguments*

Applicant's arguments filed 3/3/05 have been fully considered but they are not persuasive.

The rejection of claims 6 and 14 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been withdrawn.

The rejection of claims 1-14 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement is maintained. Applicant points out that none of the claims relate specifically to a series of repeatable fuel cell units. However, the limitation "at least one fuel cell" encompasses a series of repeatable fuel cell units. The claims are not limited to a cooling apparatus disposed with respect to a single fuel cell unit.

Applicant further argues that one skilled in the art would readily recognize an actual fuel cell stack could include other components such as a non-porous separator plate disposed between a cathodic interconnect of one fuel cell unit incorporating the flow of the oxidant and an anodic interconnect of an adjacent fuel cell unit incorporating the flow of the fuel. However, the specification must enable one of skill to make and use the invention. The specification does not enable a person of skill to construct the fuel cell assembly. Generally a fuel cell stack comprises a separator plate between the anode of a first fuel cell unit and the cathode of a second fuel cell unit. The separator plate generally comprises grooves for an anode reactant gas (for the anode of the first cell) on a first side of the separator plate and grooves for a cathode reactant gas (for the cathode of the second fuel cell) on a second side of the separator plate. The "cooling apparatus"

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of the claimed invention appears to function as a separator plate with the exception of the cavity that couples the channels of the upper and lower portions. The specification does not enable one of skill to construct the fuel cell assembly of the claimed invention.

If Applicant believes a telephone interview would clarify the invention and expedite prosecution of the application, Applicant is invited to telephone the Examiner to discuss the 35 U.S.C. 112, 1<sup>st</sup>, rejection above.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**TRACY DOVE**  
**PRIMARY EXAMINER**

May 5, 2005